

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all previous versions, and listings, of the claims in this application.

Listing of Claims:

1. (Currently Amended) Apparatus for treating a fracture of a bone of a subject, comprising:

an intramedullary (IM) nail [[,]] adapted to be inserted in a medullary canal of the bone of the subject [[,]] and comprising a proximal head that defines at least one hole therethrough; and

[[a]] at least one sleeve insertable into a respective one of the at least one hole, each of the at least one sleeve comprising a locking mechanism ~~which locking mechanism is adapted to engage which engages a portion of the nail around the~~ respective hole when the sleeve is inserted in the respective hole, ~~such engagement preventing the locking mechanism of each of the at least one sleeve being integral with the at least one sleeve and structured and arranged to cooperate with the portion of the nail around the respective one of the at least one hole to prevent~~ rotational and longitudinal movement between the sleeve and the hole nail when the sleeve is inserted in the respective hole in the nail.

2. (Currently Amended) Apparatus according to claim 1, further comprising [[a]] at least one screw, ~~wherein the each of~~

the at least one sleeve is adapted to being arranged to slidably receive the a respective one of the at least one screw.

3. (Currently Amended) Apparatus according to claim 1, wherein the proximal head is shaped so as to define a female coupling element located on a surface of around the hole, and wherein the locking mechanism comprises a depressible male coupling element, configured to engage the female coupling element so as to prevent the rotational and longitudinal movement between the sleeve and the nail.

4. (Original) Apparatus according to claim 3, wherein the female coupling element is shaped to define a notch.

5. (Original) Apparatus according to claim 3, wherein the male coupling element comprises a tab.

6. (Original) Apparatus according to claim 3, wherein the depressible male coupling element is adapted to engage the female coupling element when the sleeve is inserted in the hole to a fixed depth and then rotated until the depressible male coupling element engages the female coupling element.

7. (Currently Amended) Apparatus for treating a fracture

of a bone of a subject, comprising:

an intramedullary (IM) nail [[,]] adapted to be inserted in a medullary canal of the bone of the subject, the IM nail comprising a stem adjacent a first end of the nail and a proximal head having a distal portion including at least one hole for receiving a coupling element and a proximal portion, the distal portion being arranged adjacent the stem and the proximal portion being arranged adjacent a second end of the nail opposite the first end of the nail such that the distal portion of the head is between the proximal portion of the head and the stem, the distal portion having a distal diameter, and the proximal portion having a proximal diameter less than or equal to about 80% of the distal diameter.

8. (Original) Apparatus according to claim 7, wherein the proximal diameter is less than or equal to about 50% of the distal diameter.

9. (Original) Apparatus according to claim 7, wherein the proximal diameter is equal to between about 5 mm and about 10 mm and the distal diameter is equal to between about 11 mm and about 17 mm.

10. (Original) Apparatus according to claim 7, wherein

a length of the proximal portion is equal to between about 10% and about 50% of a length of the distal portion.

11. (Currently Amended) Apparatus according to claim 7, ~~wherein the distal portion defines at least one hole therethrough, and further~~ comprising [[a]] at least one sleeve, ~~which comprises comprising~~ a locking mechanism, ~~which locking mechanism is~~ adapted to engage a respective one of the at least one hole when the sleeve is inserted in the respective hole, such engagement preventing rotational and longitudinal movement between the sleeve and the respective hole.

12-25. (Canceled)

26. (Currently Amended) Apparatus for treating a fracture of a bone of a subject, comprising:

an intramedullary (IM) nail, adapted to be inserted in a medullary canal of the bone of the subject, the IM nail comprising a stem adjacent a first end of the nail and a proximal head having a distal portion including at least one hole for receiving at least one coupling element and a proximal portion, the distal portion being arranged adjacent the stem and the proximal portion being arranged adjacent a second end of the nail opposite the first end of the nail, the proximal portion being

visually discrete from the distal portion, the proximal portion adapted to aid in locating the IM nail, and the distal portion adapted to be coupled to the at least one coupling element.

27. (Currently Amended) Apparatus according to claim 26, wherein the ~~distal portion is adapted to be coupled to the at least one element, the~~ at least one coupling element ~~being is~~ selected from ~~the list~~ a group consisting of [[:]] a nail, a screw, a pin, and a sleeve.

28. (Currently Amended) Apparatus according to claim 26, wherein the ~~distal portion defines at least one hole therethrough, and~~ further comprising a sleeve, which comprises a locking mechanism, which locking mechanism is adapted to engage the hole when the sleeve is inserted in the hole, such engagement preventing rotational and longitudinal movement between the sleeve and the hole.

29-77. (Canceled)

78. (Currently Amended) Apparatus for treating a fracture of a bone of a subject, comprising:

an intra osseal body adapted to be inserted substantially entirely inside a bone to secure a fracture of the bone, such

~~that substantially no portion of the body extends outside an~~
~~external surface of the bone~~ the body including at least one head
hole therein; and

a retrieving device adapted to engage the body while the
body is inserted in the bone, for locating the body in the bone
and for enabling access to the body while the body is in the
bone, a portion of the retrieving device being lockable into the
at least one hole in the body.

79. (Previously Presented) Apparatus according to claim 78,
wherein the retrieving device comprises:

a locating device including at least one connecting element,
fixed to a distal end of the locating device, the at least one
connecting element being adapted to be temporarily coupled to the
body; and

a location indicating element, fixed to a proximal end of
the locating device, the location indicating element being
adapted to indicate, when the at least one connecting element is
coupled to the body, a location on an external surface of the
bone substantially directly over a location of a proximal end of
the body.

80. (Currently Amended) Apparatus according to claim 79,
wherein the body has a head portion having the at least one head

hole therein, and wherein the at least one connecting element comprises a member arranged to be received in a respective one of the at least one head hole in the head portion of the body.

81. (Currently Amended) Apparatus according to claim 78, wherein:

the body comprises a proximal head portion having a proximal end, the proximal head portion defining the at least one hole therethrough, and the proximal head portion defining a longitudinal channel open to the at least one hole and to the proximal end; and

the retrieving device comprises a bendable, resilient elongated element, which includes a forward end, the elongated element being adapted to be inserted into the at least one hole and through at least a portion of the channel, and through the proximal end of the proximal head portion, and then through the bone, to thereby indicate a location on the external surface of the bone substantially directly over the proximal end of the proximal head portion.

82. (Previously Presented) Apparatus according to claim 81, wherein said forward end of said elongated element includes a sharp tip.

83. (New) Apparatus according to claim 1, wherein the at least one hole comprises a plurality of holes.

84. (New) Apparatus according to claim 1, wherein the at least one hole consists of two holes.

85. (New) Apparatus according to claim 84, wherein the two holes are both angled relative to a longitudinal axis of the nail.

86. (New) Apparatus according to claim 1, wherein the locking mechanism comprises a depressible tongue which is part of each of the at least one sleeve.

87. (New) Apparatus according to claim 86, wherein the depressible tongue includes a projection on an outer surface which cooperates with the portion of nail around the respective one of the at least one hole when the sleeve is inserted in the respective hole in the nail.

88. (New) Apparatus according to claim 1, further comprising at least one anchoring element, each of the at least one sleeve being arranged to slidably receive a respective one of the at least one anchoring element.

89. (New) Apparatus according to claim 1, wherein the nail comprises a stem adjacent a first end of the nail and the proximal head has a distal portion including the at least one hole and a proximal portion, the distal portion being arranged adjacent the stem and the proximal portion being arranged adjacent a second end of the nail opposite the first end of the nail such that the distal portion of the head is between the proximal portion of the head and the stem, the distal portion having a distal diameter, and the proximal portion having a proximal diameter less than or equal to about 80% of the distal diameter.

90. (New) Apparatus according to claim 7, wherein the proximal portion of the head is removable from the distal portion of the head.

91. (New) Apparatus according to claim 7, wherein the at least one hole in the distal portion comprises a plurality of holes.

92. (New) Apparatus according to claim 7, wherein the at least one hole in the distal portion consists of two holes.

93. (New) Apparatus according to claim 92, wherein the

two holes are both angled relative to a longitudinal axis of the nail.

94. (New) Apparatus according to claim 7, wherein the proximal diameter is between about 25% and about 50% of the distal diameter.

95. (New) Apparatus according to claim 7, wherein there is a sudden narrowing between the proximal portion and the distal portion.

96. (New) Apparatus according to claim 7, further comprising at least one sleeve insertable into a respective one of the at least one hole, each of the at least one sleeve comprising a locking mechanism which engages a portion of the nail around the respective hole when the sleeve is inserted in the respective hole, the locking mechanism of each of the at least one sleeve being integral with the at least one sleeve and structured and arranged to cooperate with the portion of the nail around the respective one of the at least one hole to prevent rotational and longitudinal movement between the sleeve and the nail when the sleeve is inserted in the respective hole in the nail.

97. (New) Apparatus for treating a fracture of a bone of a subject, comprising:

an intramedullary (IM) nail insertable into a medullary canal of the bone of the subject and comprising a proximal head that defines at least one hole therethrough;

at least one sleeve insertable into a respective one of said at least one hole; and

locking means arranged on each of said at least one sleeve for locking said sleeve in connection with said nail when said sleeve is inserted in the respective one of said at least one hole in said nail in order to prevent rotational and longitudinal movement between said sleeve and said nail.

98. (New) Apparatus according to claim 97, wherein said locking means are arranged on a peripheral surface of each of said at least one sleeve.

99. (New) Apparatus according to claim 97, wherein each of said at least one sleeve is tubular, further comprising a screw slidably received in each of said at least one sleeve.

100. (New) Apparatus according to claim 97, wherein said locking means are arranged to engage or cooperate with a portion of said nail around the respective one of said at least one hole

when said sleeve is inserted in the respective one of said at least one hole in said nail.

101. (New) Apparatus according to claim 97, wherein said nail defines a female coupling element on a portion defining each of said at least one hole, said locking means including a member projecting from an outer surface of each of said at least one sleeve to engage with a respective female coupling element when said sleeve is inserted in the respective one of said at least one hole in said nail.

102. (New) Apparatus according to claim 101, wherein said locking means comprises a flexible male coupling element formed on each of said at least one sleeve.

103. (New) Apparatus according to claim 102, wherein said male coupling element is arranged to flex to engage with the respective female coupling element after said sleeve is inserted in the respective one of said at least one hole in said nail, whereby once said male coupling element has engaged with said female coupling element, rotational and longitudinal movement between said sleeve and said nail is prevented.

104. (New) Apparatus according to claim 102, wherein said male coupling element is arranged to engage said female coupling element when said sleeve is inserted in the respective one of said at least one hole to a fixed depth and then rotated until said male coupling element engages said female coupling element.

105. (New) Apparatus according to claim 101, wherein said female coupling element comprises a notch.

106. (New) Apparatus according to claim 101, wherein said locking means comprises a tab which projects from the outer surface of said sleeve.

107. (New) Apparatus according to claim 97, wherein said at least one hole comprises a plurality of holes.

108. (New) Apparatus according to claim 97, wherein said at least one hole consists of two holes.

109. (New) Apparatus according to claim 108, wherein said two holes are both angled relative to a longitudinal axis of said nail.

110. (New) Apparatus according to claim 97, wherein said locking mechanism comprises a depressible tongue which is part of each of the at least one sleeve.

111. (New) Apparatus according to claim 110, wherein said depressible tongue includes a projection on an outer surface which cooperates with a portion of nail around a respective one of said at least one hole when said sleeve is inserted in the respective one of said at least one hole in said nail.

112. (New) Apparatus according to claim 97, further comprising at least one anchoring element, each of said at least one sleeve being arranged to slidably receive a respective one of said at least one anchoring element.

113. (New) Apparatus according to claim 97, wherein said nail comprises a stem adjacent a first end of said nail and said proximal head has a distal portion including said at least one hole and a proximal portion, said distal portion being arranged adjacent said stem and said proximal portion being arranged adjacent a second end of said nail opposite said first end of said nail such that said distal portion of said head is between said proximal portion of said head and said stem, said distal portion having a distal diameter, and said proximal portion

having a proximal diameter less than or equal to about 80% of said distal diameter.

114. (New) Apparatus for treating a fracture of a bone of a subject, comprising:

an intramedullary (IM) nail insertable into a medullary canal of the bone of the subject and comprising a proximal head that defines at least one hole therethrough;

at least one sleeve insertable into a respective one of said at least one hole; and

a cooperating locking arrangement having a first part arranged on each of said at least one sleeve and a second part formed in said nail, said locking arrangement locking said sleeve in connection with said nail when said sleeve is inserted in the respective one of said at least one hole in said nail in order to prevent rotational and longitudinal movement between said sleeve and said nail.

115. (New) Apparatus according to claim 114, wherein said first part of said locking arrangement is arranged on a peripheral surface of each of said at least one sleeve.

116. (New) Apparatus according to claim 114, wherein each of said at least one sleeve is tubular, further comprising a screw slidably received in each of said at least one sleeve.

117. (New) Apparatus according to claim 114, wherein said second part comprises a portion of said nail around the respective one of said at least one hole.

118. (New) Apparatus according to claim 114, wherein said second part comprises a female coupling element formed on a portion defining each of said at least one hole, said first part projecting from an outer surface of each of said at least one sleeve to engage with a respective female coupling element when said sleeve is inserted in the respective one of said at least one hole in said nail.

119. (New) Apparatus according to claim 118, wherein said first part comprises a flexible male coupling element formed on each of said at least one sleeve.

120. (New) Apparatus according to claim 119, wherein said male coupling element is arranged to flex to engage with the respective female coupling element after said sleeve is inserted in the respective one of said at least one hole in said nail,

whereby once said male coupling element has engaged with said female coupling element, rotational and longitudinal movement between said sleeve and said nail is prevented.

121. (New) Apparatus according to claim 119, wherein said male coupling element is arranged to engage said female coupling element when said sleeve is inserted in the respective one of said at least one hole to a fixed depth and then rotated until said male coupling element engages said female coupling element.

122. (New) Apparatus according to claim 118, wherein said female coupling element comprises a notch.

123. (New) Apparatus according to claim 118, wherein said first part comprises a tab which projects from the outer surface of said sleeve.

124. (New) Apparatus for treating a fracture of a bone of a subject, comprising:

an intramedullary (IM) nail adapted to be inserted in a medullary canal of the bone of the subject and comprising a proximal head that defines a plurality of holes therethrough; and

a plurality of sleeves each insertable into a respective one of said holes, each sleeve comprising a locking mechanism which engages a portion of said nail around said respective hole when said sleeve is inserted in said respective hole, said locking mechanism of each of said sleeves being structured and arranged to cooperate with the portion of said nail around said respective hole to restrict rotational and longitudinal movement between said sleeve and said nail when said sleeve is inserted in said respective hole in said nail.

125. (New) Apparatus according to claim 124, wherein said locking mechanism of each of said sleeves is integral with said sleeve.

126. (New) Apparatus according to claim 124, further comprising an anchoring element, each of said sleeves being arranged to slidably receive a respective one of said anchoring elements.

127. (New) Apparatus according to claim 126, wherein said anchoring elements are screws.

128. (New) Apparatus according to claim 124, wherein said proximal head is shaped so as to define a female coupling

element located on a surface around each of said holes, and wherein said locking mechanism comprises a depressible male coupling element, configured to engage a respective one of said female coupling elements so as to prevent rotational and longitudinal movement between said sleeve and said nail.

129. (New) Apparatus according to claim 128, wherein said female coupling element is shaped to define a notch.

130. (New) Apparatus according to claim 128, wherein said male coupling element comprises a tab.

131. (New) Apparatus according to claim 128, wherein each of said depressible male coupling elements is adapted to engage the respective one of said female coupling elements when said sleeve is inserted in said respective hole to a fixed depth and then rotated until said depressible male coupling element engages said female coupling element.

132. (New) Apparatus according to claim 124, wherein said plurality of holes consists of two holes.

133. (New) Apparatus according to claim 124, wherein said holes are angled relative to a longitudinal axis of said nail.

134. (New) Apparatus according to claim 78, wherein the at least one head hole comprises a plurality of head holes, the portion of the retrieving device which is lockable into the plurality of head holes being a plurality of connecting elements each of which is lockable into a respective one of the head holes.

135. (New) Apparatus according to claim 134, wherein the at least one head hole consists of two head holes.

136. (New) Apparatus according to claim 78, wherein the body is adapted to be inserted substantially entirely inside the bone such that substantially no portion of the body extends outside an external surface of the bone.